

California Partnership for the San Joaquin Valley

Overview Report for the Air Quality Work Group

I. Introduction: the San Joaquin Valley's Limited Pollution "Carrying Capacity"

"The San Joaquin Valley – the most prolific farm belt in America – may be the most dangerous place in the United States to breathe."

The Fresno Bee, "Last Gasp" Series, 2002

The San Joaquin Valley air basin is one of only two "extreme non-attainment" air quality zones in the U.S. The air pollution problems of the Valley are unique, caused by a more limited air pollution "carrying capacity" than that of any other major air basin in the country.

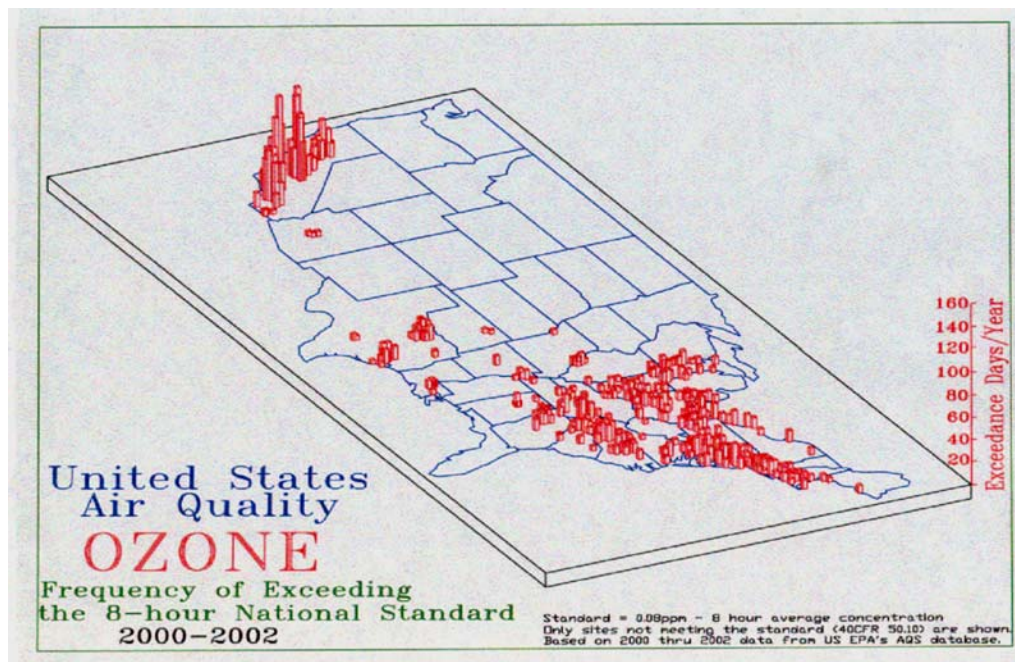


Figure 1: U.S. Ozone Violations 2000 – 2002

Source: Environmental Protection Agency

The region's limited "carrying capacity" is the result of several major factors. First, the surrounding mountains restrict the flow of air currents in and out of the Valley, resulting in very low dispersion rates. Second, the mountain ranges entrap air pollution "drift" that comes from neighboring air basins. Third, rapid daytime heating of air, coupled with high sunlight intensity, result in extremely efficient formation of photochemical smog and ozone. Fourth, during evenings and wintertime, the Valley is very prone to thermal inversions, which concentrate pollutants as the height and volume of the dispersion layer are reduced.

To further demonstrate the region's limited pollution carrying capacity, consider California's South Coast compared to the San Joaquin Valley. The South Coast has a population density 18 times greater than the San Joaquin Valley, yet the San Joaquin Valley surpassed the South Coast in 1999 and has since remained the nation's leader in 8-hour ozone violations in the country. Unlike the South Coast Air District where the situation has improved markedly since 1980, the number of days above the federal 8-hour Ozone Standard in the San Joaquin Valley has remained virtually unchanged over the same period of time.¹ Ozone mitigation has been largely offset by population growth, economic development and increased pass-through traffic on our major north-south corridors.

The Valley's air pollution carrying capacity has been exceeded for decades at significant cost to the health of Valley residents. The region has one of the highest rates of respiratory ailments² and mortality rates attributable to air pollution in the nation³, putting a strain on the Valley's already stretched health care system.

The further impact of this condition is highly significant to economic growth because it limits the number of employers that wish to locate in the Valley and adversely affects retention and attraction of the knowledge workers so critical to improved economic competitiveness.

The public is growing increasingly alarmed about the region's poor air quality. According to a survey conducted by the Public Policy Institute of California in collaboration with the Great Valley Center in April 2004, 45% of all adults surveyed (39% in the North San Joaquin Valley and 62% in the South San Joaquin Valley) identified air pollution as a "big problem," an increase from 28% of adults surveyed in 1999.⁴

II. Summary of Findings in Base Reports

On December 15, 2002, the Fresno Bee published a comprehensive report on the air quality problem in the San Joaquin Valley entitled "Last Gasp"⁵. That report summarized the key aspects of the problem and helped increase public awareness regarding the magnitude of the challenge.

Before and since, air quality issues in the San Joaquin Valley have been studied and debated by governmental agencies (e.g., Environmental Protection Agency, California Air Resources Board and San Joaquin Valley Air Pollution Control District), non-profit organizations (e.g., Public Policy Institute of California) and special interest groups (e.g., Union of Concerned Scientists, Latino Issues Forum, Central California Air Quality Coalition, Western States Petroleum Association, etc.).

¹ San Joaquin Valley Air Pollution Control District

² American Academy of Allergy, Asthma and Immunology

³ National Resources Defense Council: "Top 50 MSAs Ranked by Attributable Mortality Rate"

⁴ "Special Survey of the Central Valley in Collaboration with the Great Valley Center," Public Policy Institute of California, April 2004

⁵ See http://www.fresnobee.com/special/valley_air/part1/story1/

While a comprehensive approach dealing with mobile and stationary sources has yet to be identified, there has been a slow, but steady movement in that direction. The California Air Resources Board (CARB), for example, recently released its Central California Ozone Study (“CCOS”). According to Air Resources Laboratory, the objective of the study was:

“...to provide an improved understanding of relationships among emissions, transport, and ozone standard exceedances, as well as to facilitate planning for further emission reductions needed to attain State and Federal ozone standards. The CCOS is an integrated effort that includes air quality and meteorological field measurements, emissions characterization, data analysis, and air quality modeling...The selection of this study area reflects the regional nature of the State 1-hr and Federal 8-hr ozone exceedances, increasing urbanization of traditionally rural areas, and a need to include all of the major flow features that affect air quality in central California in the modeling domain.”⁶

III. Summary of Challenges

A. Population Growth in the San Joaquin Valley

The San Joaquin Valley is expected to be one of the fastest growing regions in California over the next twenty years. The key question to be answered is “How do we accommodate population growth and economic growth when the region is already *grossly exceeding its carrying capacity for pollution*?” And, the corollary questions are, “If the Valley’s air quality cannot be brought under control, should the region’s growth be constrained? If so, by what mechanisms? What implications would constraint of the Valley’s growth have on the State of California?”

B. Mandatory Compliance

The Valley is also faced with a question of mandated compliance. Because the Valley has been classified as a “serious non-attainment” region for 8-hour Ozone, it must develop a plan by 2007 to reach attainment by June 15, 2013. Failure to comply could result in the loss of millions of federal transportation dollars, creating a downward spiral for the Valley. Computer modeling of how close the region is likely to get to attainment without changing current policies and regulations has not yet been completed. However, some air quality experts have estimated that if the region does not change its course, it could be as much as 70% short of the goal.

C. The Regulatory Environment

The jurisdictional authority and regulations in the area of air quality are as complex as the problem.

The jurisdictional authority is defined by geographic scope and type of emission. The federal Clean Air Act (CAA) is enforced by the Environmental Protection Agency (EPA). The EPA regulates mobile sources in conjunction with the California Air Resources Board (CARB).

⁶ See <http://www.noaa.inel.gov/projects/ccos/> and http://www.arb.ca.gov/airways/ccos/docs/roth_99.pdf

CARB is also responsible for the California Air Pollution Control Laws.⁷ This includes responsibility for monitoring the regulatory activity of California's 35 local air districts, including the San Joaquin Valley Air Pollution Control District (SJVAPCD), which is responsible for promulgating rules and regulations for stationary sources in the San Joaquin Valley.

There are several problems with this regulatory scheme related to the unique issues confronting the San Joaquin Valley. The federal CAA, for example, does not allow for differences based on a region's "carrying capacity." The CAA is intended to treat all regions equally. However, a strong argument can be made that the San Joaquin Valley is not treated equally under the provisions of the CAA. Because of the region's limited carrying capacity, Valley industries are burdened with costly air quality regulations that other air basins do not have to implement, which effectively renders Valley-based industries non-competitive. Should not federal law provide special tools and incentives to air basins with limited carrying capacity? The playing field needs to be leveled so that Valley employers and the families they support are not unfairly penalized.

In addition, the SJVAPCD does not have the authority to regulate the predominant source of air pollution—mobile sources (representing 70% of NO_x and 34% of ROG pollution) - since mobile sources are under the jurisdiction of the federal EPA and the state CARB. In fact, until SB 700 was passed by the California legislature in 2004 ending California's agricultural exemption to the Clean Air Act's permitting requirements, the SJVAPCD had no jurisdiction over agriculture. Its role was limited to only stationary, non-agricultural emissions, which represent less than 30% of all emission sources. Consequently, there is a need to re-evaluate the regulatory scheme as it relates to the air quality problem in the San Joaquin Valley so that a comprehensive strategy (dealing with both mobile and non-mobile/stationary sources) can be developed and implemented to address this problem.

IV. Sources of Pollutants

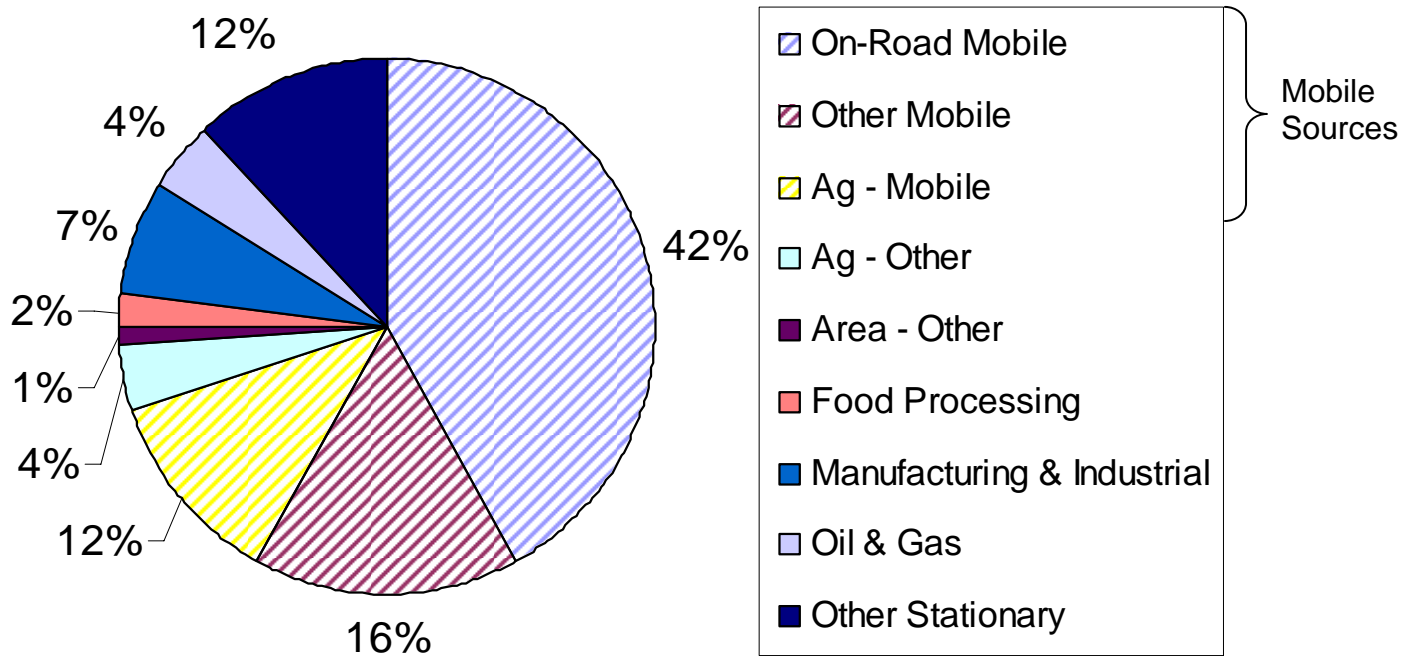
The Valley has three principal air pollutants: Ozone, PM 10 and PM 2.5. The latter two refer to particulate pollution. Because the trend line on PM 10 suggests that the Valley is approaching compliance with State and Federal standards, and because PM 2.5 compliance will significantly benefit from steps taken to comply with Ozone standards, the following paragraphs focus principally on Ozone compliance. Ozone is a chemical reaction between Oxides of Nitrogen (NO_x) and Reactive Organic Gases (ROG).

A. Oxides of Nitrogen (NO_x)

As shown below in Chart 1, mobile sources contribute 70% of the NO_x in the Valley. Of the on-road mobile sources, the largest single contributor is diesel trucks. They represent only 2 to 4% of on-road vehicles, but contribute over 40% of NO_x and over 50% of particulate matter from on-road mobile sources. Much of this truck traffic is from vehicles that use Highway 99 and Interstate 5 as a pass-through, leaving behind exhaust emissions while making virtually no

⁷See <http://www.arb.ca.gov/html/lawsregs.htm>

contribution to the Valley economy (22% of trucks were last fueled outside of California).⁸ Studies also indicate that 80% of all diesel engines in California are over ten years old.⁹



492 Tons NOx/day

Chart 1: 2005 Estimated Annual Average Emissions of Oxides of Nitrogen

Source: 2004 Estimated Annual Average Inventory – 2005 Almanac

The second most important source of “on-road mobile” pollution is light passenger vehicles referred to as “gross polluters”, old or poorly maintained cars that represent about 10% of all light passenger vehicles but contribute more than 50% of the pollution from that category.¹⁰

B. Reactive Organic Gases (ROG)

As shown below in Chart 2, mobile sources also account for the largest share (34%) of ROG, followed by agriculture (20%) and dairy (14%). As noted earlier, the Valley’s Air District has no jurisdiction today over mobile sources and has only recently been given jurisdiction over agricultural and dairy emissions.

⁸ Council of Fresno County Governments

⁹ Council of Fresno County Governments

¹⁰ Council of Fresno County Governments

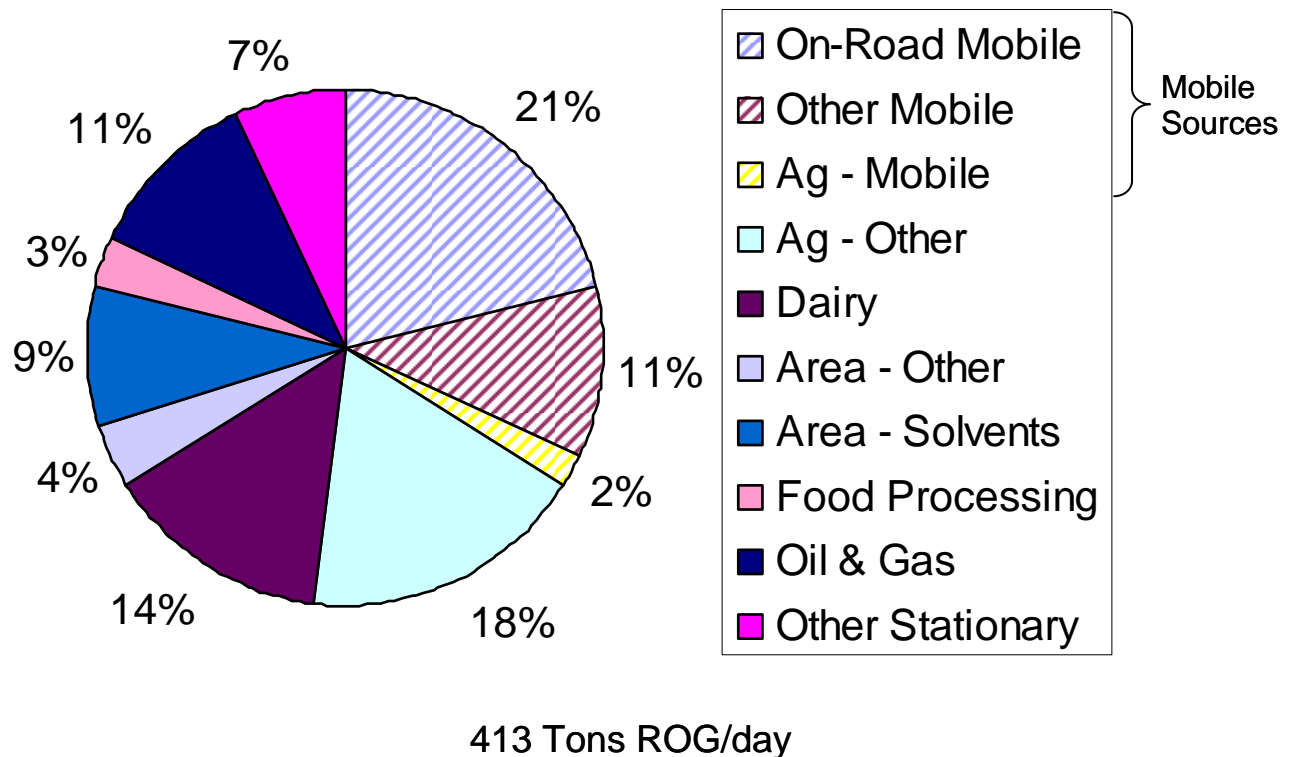


Chart 2: 2005 Estimated Annual Average Emissions of Reactive Organic Gases

Source: 2004 Estimated Annual Average Inventory – 2005 Almanac

Note: Dairy emissions use the new emissions factor.

When evaluating industry burden on pollution mitigation, it is helpful to compare the value of industry payroll to its pollution contribution (please see Chart 3). The differences shown on the chart are not surprising. While the food processing industry has been subjected to regulation since the creation of the SJVAPCD fifteen years ago, agriculture and the dairy industry just came under regulation in 2004. Despite the fact that the Valley's food processing industry currently represents only 2% of NO_x and 3% of ROG and has a payroll-to-pollution ratio of almost two to one, it continues to be subjected to increasing regulation. The very high cost per ton of pollutants removed to implement some of these regulations is threatening significant loss of jobs, not only to the food processing industry, but to associated agriculture. If the Valley's limited carrying capacity requires that the latest pollution mitigation technologies be implemented even when such technologies are not required in other air basins, some mechanism must be found to fund their implementation in a way that does not render Valley industries non-competitive in their markets.

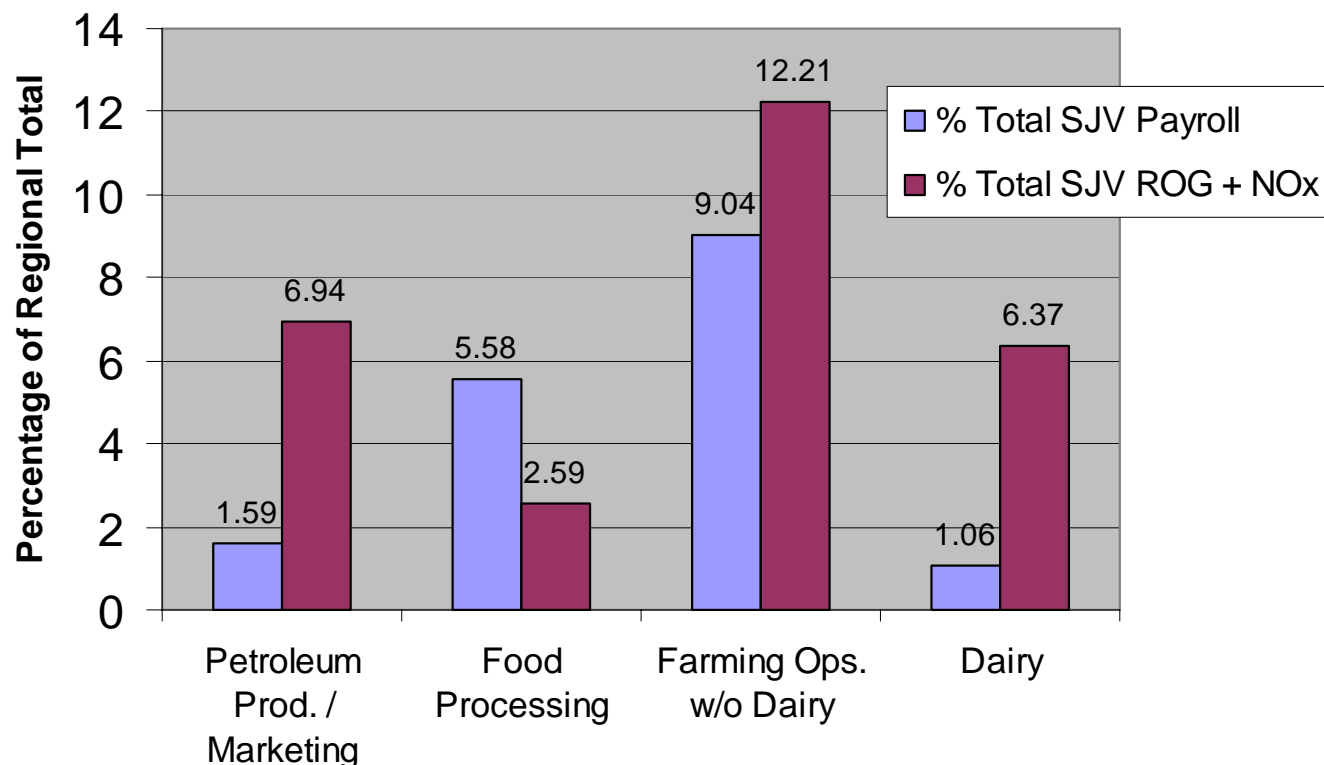


Chart 3: Comparison of Regional Payroll and Pollution Contribution by Sector

Source: California Employment Development Department and San Joaquin Valley Air Pollution Control District

Taken together, these statistics on pollution sources and payroll-to-pollution not only provide guidance regarding the most cost-effective ways to address the air quality issue, but they could also be used as part of a cost-benefit analysis regarding land use issues and the future economic development of the San Joaquin Valley. Furthermore, they point to the imperative of developing a plan that is “outside the box”, one which takes into account the unique air pollution challenges of the Valley’s limited carrying capacity.

V. Proposed Goals for the Air Quality Work Group

The creation of the Air Quality Work Group represents an opportunity to form a partnership between local industry, local government, academia, the Air District Board, CARB and the EPA to develop a comprehensive plan in which all sectors and pollution sources are seen as part of the solution. Deferral of attainment dates should not be viewed as a solution. While deferral may serve to avoid or defer loss of federal transportation dollars, it does not solve the Valley’s health problems nor remove the restrictions on economic growth. Creative approaches are needed, including the means to fund implementation of the latest air pollution mitigation technologies without crippling the region’s industrial base. Strategic decisions must be made through the lens

of sustainable economic development, and an effective regulatory structure must be established to oversee the implementation of the comprehensive plan.

Proposed goals of the Work Group include:

- A. **Create a consensus with area stakeholders and governmental agencies around a comprehensive strategy (dealing with both mobile and non-mobile/stationary sources) to effectively and efficiently address the Valley's air quality problems:**
 - In a timely manner (i.e., on or before the federal Clean Air Act mandated dates);
 - In a way that is compatible with the goal of sustainable economic development; and
 - Through a balanced combination of regulation, incentives and assistance in consideration of the Valley's limited air pollution capacity.
- B. **Delegate the implementation and ongoing assessment of the comprehensive strategy to a single governmental agency or entity.**
- C. **Develop a plan to educate elected leaders, public administrators and the community-at-large on the facts surrounding the Valley's air quality so they become allies in the implementation of the comprehensive strategy.** This plan would aim to build on the existing educational efforts by media organizations, the American Lung Association and others.

VI. **Proposed Scope of Work for the Air Quality Work Group**

- A. **Evaluate and recommend alternative paths to generate funding to invest in new research and technology and to accelerate deployment of emission-reducing technologies.** Some possible alternatives (not mutually exclusive):
 - Designation and deployment of a basin-wide *Air Quality Empowerment Zone and Enterprise Zone* (including Federal and State Income Tax Credits, low or zero interest loans, etc.).
 - Collection of *Air Quality Reinvestment Fees* from diesel trucks on H-99 and I-5, based on exhaust emissions.
 - Application of *Emission Reduction Credits* to housing developments and warehouses.
 - Federal and State grant funding to conduct research on Valley emission sources and development of new emission abatement technologies.
 - Special programs to incent development and use of clean energy, e.g. biomass (e.g., livestock waste), wind, solar and geothermal energy.
- B. **Evaluate and recommend strategies to reduce emissions from On-Road & Off-Road Mobile Sources.** Some possible alternatives (not mutually exclusive):
 - Advocate for National Fuel Standards.
 - Use sensors to identify gross polluting vehicles.
 - Use proceeds from *Air Quality Reinvestment Fees* to match Carl Moyer program and in order to accelerate the removal of gross polluting vehicles and replace/renovate truck fleets (particularly older diesel fleets), school bus fleets, diesel fork-lift trucks, etc.

- Use proceeds from *Air Quality Reinvestment Fees* to develop a better rail transportation system.
- Encourage and incentivize walk-able/bike-able communities (e.g., pedestrian and bike trails, bike lanes, bike racks/lockers, employee locker & shower facilities, etc.).
- Explore short sea shipping between Los Angeles/ Long Beach and San Francisco.
- Build more natural gas/clean fuel filling stations.
- Encourage van/car-pooling, walking/biking and use of mass transit.
- Educate public about the importance of maintaining their vehicles (i.e., properly tuned, inflating tires to the proper level, not topping off the tank at the gas station, etc.).
- Educate public about “environmentally-friendly” driving (not warming up the car for long periods of time, avoiding idling at drive-up windows or at train crossings, avoiding aggressive driving, etc.).

C. Evaluate and recommend strategies to reduce emissions from Stationary Sources.
Some possible alternatives (not mutually exclusive):

- Couple new air quality regulations with the benefits of a Valley-wide Air Quality Empowerment Zone and Air Quality Enterprise Zone to accelerate introduction of emission-reducing technologies.
- Use alternative compliance programs for industry, including market-based emissions trading.
- Invest in research to better understand emission sources as well as relevant abatement management practices and technologies.
- Evaluate the merits and disadvantages of temporary moratoriums on expansion of industries that have a high pollution to economic contribution ratio until such time as emission abatement strategies can be implemented.
- Phase out of all non-approved wood fireplaces over time.
- Utilize tree shade over parking lots to cut down on pollution-creating gases coming from cars.
- Educate the public to encourage environmentally-friendly consumer behavior (e.g., buying energy-conserving refrigerators, washers, ovens and other appliances; replacing gasoline-powered yard tools with electric; using gas—instead of charcoal—grills, seal paints and solvents, etc.).

D. Coordinate with the Ag, Land Use and Housing Work Group to evaluate and recommend land use planning with a view towards air quality mitigation.

- Develop Smart Growth guidelines for the Valley.
- Consider comprehensive integration of land use development and air quality mitigation under the regulatory authority given to the SJVAPCD via the *Indirect Source Rule*.

E. Evaluate and recommend changes in governmental oversight to ensure a unified approach to implementation of the recommended strategic plan.

VII. Air Quality Work Group Stakeholders

The following is a starter list of organizations that are natural participants and/or that have expressed an interest in being involved in the Air Quality Work Group:

- Environmental Protection Agency (EPA)
- California Air Resources Board (CARB)
- San Joaquin Valley Air Quality Control District
- Operation Clean Air (OCA)
- The Kenneth L. Maddy Institute at California State University, Fresno
- The Manufacturers Council of the Central Valley
- American Lung Association
- Relational Culture Institute
- Regional Jobs Initiative
- Building Industry Association
- California Trucking Association
- The Wine Institute
- Cotton Ginners Association
- California League of Food Processors
- Western Dairywomen
- Environmental Defense
- U.C. Merced

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